US-PAT-NO: 6222881

DOCUMENT-IDENTIFIER: US 6222881 B1

TITLE: Using numbers of non-zero
quantized transform signals
                          and signal differences to
determine when to encode video
                          signals using inter-frame or
intra-frame encoding

DATE-ISSUED: April 24, 2001

INVENTOR-INFORMATION:
NAME   CITY
     STATE   ZIP CODE   COUNTRY
Walker; Mark   Hillsboro
     OR   N/A   N/A

APPL-NO: 08/ 335550

DATE FILED: November 7, 1994

PARENT-CASE:

   This is a continuation-in-part of application
Ser. No. 08/324,923 filed
Oct. 18, 1994 now U.S. Pat. No. 5,802,213.

US-CL-CURRENT: 375/240.03, 375/240.02 ,
375/240.04

ABSTRACT:

   A transform is applied to a region of a current
video frame to generate
transform signals corresponding to the region. An
activity measure is

generated using the transform signals. The
activity measure is then used to
determine whether to encode the region as a skipped
region. The region is
encoded in accordance with that determination to
generate an encoded bit stream
for the region. In a preferred embodiment, the
transform signals are DCT
coefficients and the activity measure is a weighted
sum of the DCT
coefficients, where the weighting of the
low-frequency DCT coefficients is
greater than the weighting of the high-frequency
DCT coefficients. The region
is encoded as a skipped region if the activity
measure is less than a threshold
value; otherwise, the region is encoded as either
an inter encoded region or an
intra encoded region.

20 Claims, 22 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 22

---------- KWIC ----------

Detailed Description Text - DETX (69):
   This temporal prefilter may produce some visible
artifacts. For example,
moving objects may leave residues that persist
until another local change
occurs. In addition, initial noise may get frozen
and not decay. One solution
is to make the temporally-filtered pixels converge
to the long-term **moving**
average. To avoid significantly increasing the
entropy code size, the

convergence process preferably has the following
characteristics:

Detailed Description Text - DETX (197):
    Table III contains the preferred VLC codes for
the **non-zero** DCT **AC**
coefficients in intra blocks of reference frames.
A DCT AC coefficient value
of 98 (which would consist of fourteen 1's) is not
permitted in order to avoid
confusion with either the sequence start code or
the frame start code.

Detailed Description Paragraph Table - DETL (15):
    TABLE III VLC Codes for **Non-Zero** DCT **AC**
Coefficient Values for Intra
Blocks of Reference Frames VALUE BITS CODE 1 2 0S
 2 3 10S 3-4 5 110XS 5-6
6 1110XS 7-10 8 11110XXS 11-18 10 111110XXXS
19-34 12 1111110XXXXS 35-97 14
1111111XXXXXS